

REMARKS

In the Office Action, the Examiner rejected Claims 1-22, which were all of the then pending claims, under 35 U.S.C. §103 as being unpatentable over U.S. Patent 5,767,842 (Korth) in view of U.S. Patent 6,407,679 (Evans, et al.).

Applicants herein ask that independent Claims 1, 4, 8, 9, 10, 14, 17 and 21 be amended to better define the subject matters of these claims.

For the reasons discussed below, Applicant believes that entry of this Amendment is appropriate, and that Claims 1-22, as presented herewith, patentably distinguish over the prior art and are allowable. Accordingly, Applicants respectfully request that the Examiner enter this Amendment, reconsider and withdraw the rejection of Claims 1--22, and allow these claims.

As explained in detail in the present application, this invention relates to methods and systems for generating text or data from typing gestures made in the absence of a real keyboard. With the present invention, a person moves his or her hands as if that person was typing, and computer processes are used to transform those finger movements, or gestures, into text or data.

With the preferred embodiment of this invention, images of those gestures are taken or captured, and the computer processes are used to classify gesture images into classes, to associate each of those classes with one or more possible keys, and to assign a probability to each of those possible keys. Then, for a sequence of classes, the probabilities assigned to the possible keys associated with the sequence are integrated to identify a word for that sequence of classes.

Korth discloses a virtual typing system in which hand and finger movements are interpreted as operations on a physically non-existent computer keyboard or other input device. The Examiner noted in the Office Action that Korth does not disclose classifying gestures into classes and associating each of those classes with one of the keys of the keyboard. The Examiner argued, though, that Evans, et al teaches these or similar functions.

Evans, et al discloses a procedure for converting finger movement into text. However, the specific procedure used in Evans, et al to perform that conversion is quite different than the specific procedure used in the practice of the present invention.

To elaborate, with the procedure disclosed in Evans, et al, each finger gesture is assigned a number, a series of numbers is formed, and that series is matched to one or more possible words. After a sentence is completed, all possible sentences are formed, a probability is assigned to each sentence possibility, and the most probable sentence is selected.

In contrast, with this invention, text is determined more on a word by word basis than on a sentence by sentence basis. With the present invention, each word is identified on the basis of the probabilities assigned to the possible keys assigned to the gesture classes that make up that word.

This feature is of utility because it provides a quicker feedback to the user. With the procedure used in Evans, et al, a complete sentence must be finished before a final text is determined. The present invention, in comparison, is able to determine each word immediately after the word is input.

As presented herewith, Claims 1, 4, 8, 9, 10, 14, 17 and 21 clearly describe this feature of the invention. More specifically, each of Claims 1, 8, 9, 10 and 17 is being amended to indicate that the computer processes described in the claims, among other functions, associate each of the classes with one or more possible keys, assign a probability to each of those possible keys, and integrate the probabilities assigned to the possible keys to identify a word for a sequence of gestures.

Claim 4 is being amended to indicate that the associator module associates gesture classes with one or more possible keys, and that the integrator module integrates the probabilities assigned to the possible keys to identify a word for a sequence of gestures. In addition, as presented herewith, Claim 14 describes the producing step as including the step of associating each of the classes with one or more possible keys, assigning a probability to each of said possible keys, and integrating the probabilities assigned to the possible keys to identify a word for a sequence of gestures. Claim 21, which is directed to a typing system, includes analogous apparatus limitations.

The other references of record have been reviewed, and it is believed that these other references also do not disclose or suggest this feature of the present invention.

In light of the above-discussed differences between Claims 1, 4, 8, 9, 10, 14, 17 and 21 and the prior art, and because of the advantages associated with those differences, it cannot be said that any of these claims is obvious in view of that prior art. Accordingly, Claims 1, 4, 8, 9, 10, 14, 17 and 21 patentably distinguish over the prior art and are allowable. Claims 2, 3 and 7 are dependent from, and are allowable with, Claim 1; and Claims 5 and 6 are dependent from, and are allowable with, Claim 4. Also, Claims 11-13 are dependent from Claim 10 and are allowable therewith, and Claims 15 and 16 are dependent from Claim 14 and are allowable

therewith. Likewise, Claims 18-20 are dependent from Claim 17 and are allowable therewith; and Claim 22 is dependent from, and is allowable with, Claim 21.

It is noted that the changes requested herein to Claims 1, 4, 8, 9, 10, 14, 17 and 21 only emphasize features already described in the claims. For example Claims 1, 8, 9, 10 and 17 already describe computer processes, and these claims are being amended to elaborate on the functions performed by these processes. Consequently, it is believed that entry of this Amendment is appropriate, and such entry is respectfully requested.

For the reasons discussed above, the Examiner is respectfully asked to enter this Amendment, to reconsider and to withdraw the rejection of Claims 1-22 under 35 U.S.C. §103, and to allow these claims. If the Examiner believes that a telephone conference with Applicants' Attorneys would be advantageous to the disposition of this case, the Examiner is asked to telephone the undersigned.

Respectfully submitted,

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